The official Z BASIC Newsletter

Z™

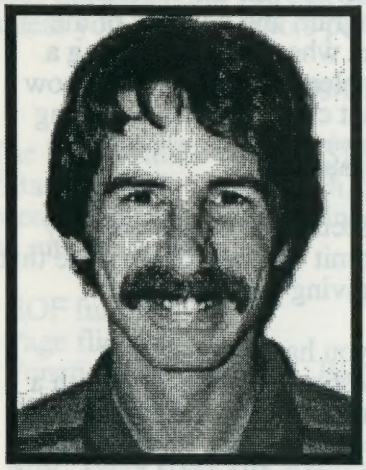
First Edition | Winter 1986-1987 | $5.95

A Call for ZBasic General Purpose Subroutines

Many of us would like to obtain Public Domain ZBasic routines so you don't have to re-create the wheel every time you write a program. Can you imagine the time it would save?

continued page 19

ZBasic Inventor



Andrew Gariepy, President

As most of you know, Andrew Gariepy created the first version on a TRS-80 computer, back in 1979. Since then it has developed into

continued on page 7

Upgrades

Zedcor offers upgrades to users at a surprisingly fair price.

The latest release of the various versions of ZBasic and the reference manual is:

Amstrad (CP/M)	*3.1*
Apple // DOS 3.3	*3.11*
CP/M-80™	*3.1*
Kaypro® Graphics	*3.1*
MSDOS™/IBM PC	*3.02*
Macintosh™	*3.03*
TRS-80™ (1,3 and 4)	*3.1*

ZBasic Manual: 3rd Edition

Since ZBasic is a living, growing language, there will always be enhancements, bug fixes and improvements.

Customer suggestions are

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Introduction to Z

This newsletter is for people that use Zedcor's BASIC Compiler. ZBasic operates on many computers including; IBM PC's, Macintoshes, Apple //s, CP/M machines and more.

"Z" is also the result of hundreds of requests from ZBasic users.

It is an efficient way to distribute important information to programmers including:

- **The latest Upgrade notices**
- **Programming tricks**
- **Fixes and Patches**
- **Program Examples**
- **The latest from Zedcor**
- **Program announcements**
- **Dear Dr. Z column**
- **Technical Support notes**
- **User Forum**
- **Notes from the Developers**

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Doctor Z
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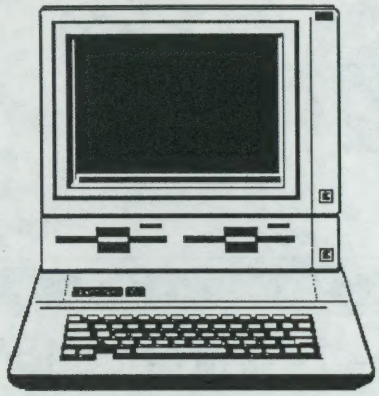

Apple // Notes

Apple® //e, //c, II+

The latest version of ZBasic for DOS 3.3 is 3.11. What's been fixed? There were some problems with Chaining, CLEAR END, CIRCLE PLOT, CIRCLE FILL and BOX FILL and a couple of other minor things.

To check your version;

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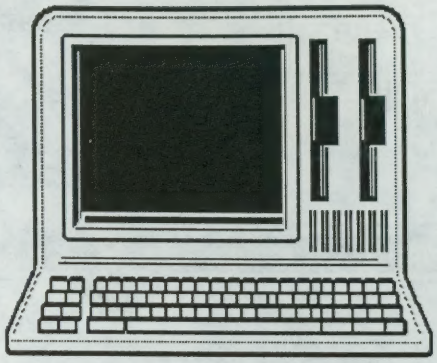


Z80 Notes

CP/M™ and TRS-80™ Computers

The Z80 versions of ZBasic are the oldest. Andrew Gariepy created the original ZBasic on an old TRS-80 model one computer back in 1979. At the time it was just for fun, but over the years it became a serious business. Although Z80 computers are falling out of favor lately, we will continue to support them with

continued on page 6

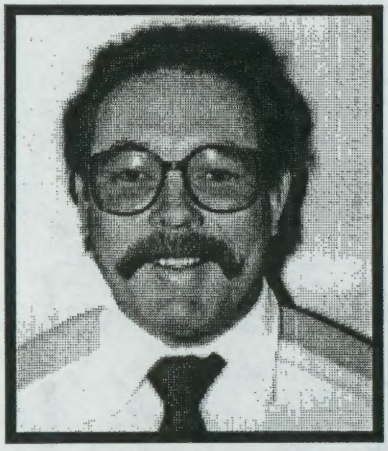
Support Notes

by David Lewis, Zedcor Technical Support Group

I've been programming with ZBasic for some time now and in my opinion it is the fastest, most versitile compiler on the market. It does, however, have its complexities (that's why I have this job).

I remember when support questions were easy; like "How do I save in ASCII?"

Lately I get more sophisticated questions like; "I'm converting a program over from MSBasic. It is 97K in length and it bombs when I compile it". Being a programmer, I'm sure you can appreciate my delima and understand why I would have no problem answering the first



question over the phone and request the second user to send me more information by mail.

Most questions can be handled by phone but when it involves examining code and program logic of any considerable size, phone support is not feasible. In this case please submit a diskette with the problem program and a listing of the area where you are having a problem. I also need to know what computer you are using (remember: ZBasic is available for many machines).

If security is a problem only submit that part of the code that is giving you a problem.

If you have any support questions or need help with a complex part of ZBasic, feel free to call me; 11AM to 5PM Mountain Standard Time. That's two hours behind the East coast and the same as the West coast except during daylight savings time when there is an extra hour difference (Arizona doesn't observe daylight savings time).

D.L.

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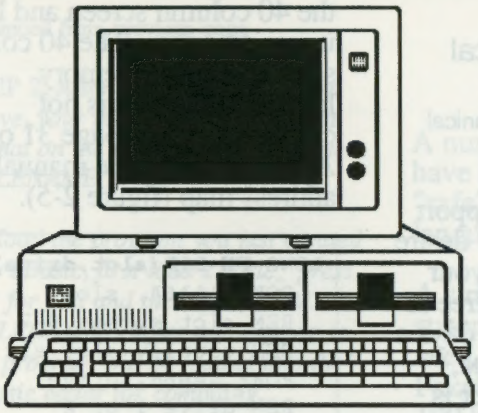

IBM-MSDOS Notes

IBM® PC and MSDOS™ compatibles

This version of ZBasic continues to be the hottest seller.

This column is packed with information. Please submit any programs you have for IBM PC or MSDOS machines so we can include them in future newsletters. Your help is appreciated.

The subroutines included in this column may be used freely in your programs or be passed out to your friends since they are Public Domain (this does not mean that you can sell them for profit unless you get the authors permission).

Update Information

The latest release of the MSDOS version of ZBasic is 3.02, dated March, 1986. There have been lots of things added since version 3.01 so be sure to upgrade:

- EOF function
- Page flipping
- Functions for BLOAD, BSAVE, CALL etc.
- Bug fixes
- More OPEN"C" support
- Misc. other fixes and additions

BASICA to ZBasic Conversion Program

Zedcor has a BASICA (and GW Basic™) to ZBasic conversion program available for $29.95.

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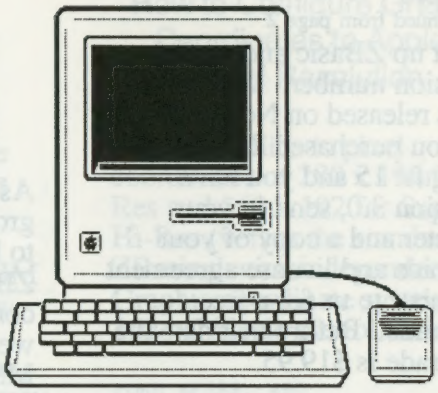

Macintosh Notes

Mac 512™, Macintosh Plus™, Mac XL™

We're all excited about the Macintosh version of ZBasic. With the Macintosh event-trapping, powerful toolbox software, MacinTalk interface and 68000 cpu, it is the most exciting version of ZBasic available. Cheers to Apple for making such a powerful human interface.

This version of ZBasic is selling like hotcakes. People have been waiting for a "serious" BASIC for the Mac for a number of years and now they have it.

Please submit your Mac-specific articles and subroutines, especially in the area of Toolbox use and Mac event-trapping, for inclusion in future newsletters.

Send any suggestions or feedback. We're always looking for ways to improve ZBasic.

Update Information

Version 3.03 for the Mac was released December 1, 1986. Users that bought ZBasic after September 1 can get free updates: see page 15 for complete upgrade information.

How is version 3.03 different from 3.01?

- Lots of fixes and fine tuning
- 10 new Dialog functions
- New Window refresh support

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Apple

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start up ZBasic and read the version number. Version 3.11 was released on November 12. If you purchased ZBasic after August 15 and you have version 3.0, send in your master and a copy of your invoice and license agreement number to us for a free upgrade. Before that date the upgrade is $19.95.

DOS 3.3 doesn't seem to be used much anymore. I remember a couple of years ago, when ZBasic was in the early development stages and ProDOS had just begun shipping, some of us thought it wouldn't make it. Boy, were we wrong. ProDOS is much more powerful and easier to use than old DOS 3.3 which now seems to be falling by the wayside.

Applesoft™ to ZBasic™ conversion program

A ZBasic user has created an Applesoft to ZBasic conversion program. It converts existing Applesoft™ programs over to ZBasic (about 98%). This saves a lot of time and frustration when converting.

Available from:
Carl Bringardner
1736 E. North Broadway
Columbus, OH 43224.

FREE UPGRADES for 60 DAYS

Only $19.95 thereafter.

APPLE // Technical Support Notes

David Lewis, Zedcor Technical Support Group

As part of the Zedcor support group let me express my desire to help you with any of your ZBasic questions. Feel free to contact me at Zedcor, 5 days a week, from 11AM to 5PM, MST. The phone number is (602) 795-3996.

This column will cover the common problems ZBasic users have using this version. I get asked these same questions everyday and can recite the answers in my sleep. Keep your newsletters handy for future reference.

Please send any subroutine solutions you have created for the Apple. I will include them in my column to help you and your fellow users.

BSAVE and BLOAD Functions for DOS 3.3

The following routines were provided by Greg Branche to do the BLOAD and BSAVE commands as in Applesoft™. These are long functions so be sure to put them at the beginning of your program.

Listing on Opposite Page.

How to get a Catalog (DIR) During Runtime

The following function was given to us by Greg Branche. It allows getting a disk directory from a running ZBasic program. To load the directory into your program you could PEEK at the text on the 40 column screen and load it into an array. The 40 column screen starts at memory location 1024 but is not contiguous. See page 31 of the Apple //e reference manual for address map (figure 2-5).

```
LONG FN DIR(slot,drive)
  POKE &AA6A, slot
  REM slot number 0-7
  REM usually slot six
  POKE &AA68, drive
  REM drive 1 or 2
  CALL &A56E
END FN
```

Runtime DIR

Loading Applesoft™ Programs into ZBasic™.

We have had many requests for a way to easily load Applesoft™ programs into ZBasic™. Many people have tried LISTing the program to disk but this adds an extra blank line which confused ZBasic (fixed in version 3.11).

I asked Greg Branche, head of our Apple // R&D section, to help me out. He gave me these ingenious instructions and a program line that solves the problem nicely;

STEP 1: The program must first be converted into a sequential text file by adding the following line to the program you want to convert. Make sure your Applesoft program doesn't have a line zero, then add:

```
Ø F$="FILENAME": PRINT
CHR$(4)"OPEN";F$:PRINT
CHR$(4)"WRITE";F$:POKE 33,33:
PRINT"Ø";:LIST 1-:PRINT
CHR$(4);"CLOSE":TEXT:END
```

Applesoft™ to ASCII

continued next page

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STEP 2: *After running the program above, your program is now in text format on the disk with the filename "FILENAME".*

To load the program you just created into ZBasic, first load ZBasic, press "E" for edit and then type; LOAD "FILENAME". After a minute or so the program will be loaded into the ZBasic editor for compiling.

STEP 3: *SAVE the program with the FILENAME you want.*

Setting Aside "SAFE" Memory

A number of programmers have asked how to set aside "safe" memory for machine language programs.

A simple way is to use a DIM statement. Example; if you need 100 bytes, use DIM Fake%(49). This sets aside 100 bytes for this integer array (2 bytes per element 0-49).

```
SafeAddress% = VARPTR(Fake%(Ø))
```

```
REM: BSAVE function same syntax as Applesoft except
REM: it has FN in front of it: You must supply Start
REM: address and Length
LONG FN BSAVE (Name$, Start, Length)
  Name$="!4"+Name$: REM File type 4= binary file
  OPEN"O", 1, Name$
  Write#1, Start, Length: REM Header info
  End=Start+Length
  FOR i=Start TO End STEP 2
    a%=PEEK WORD(i)
    WRITE#1, a%
  NEXT i
  CLOSE#1: REM All done!
END FN
```

```
REM: BLOAD function same syntax as Applesoft except
REM: it has FN in front of it: If Start=zero
REM: load the file where it was previously saved from.
LONG FN BLOAD (Name$, Start)
  Name$="!4"+Name$: REM File type 4= binary file
  OPEN"I",1, Name$
  REM If Start address not given use file address
  IF Start=0 then READ#1, Start ELSE Read#1, End
  READ#1, Length:REM Get length from file
  WHILE Length>128
    READ#1, a$;128:REM Read 128 bytes at a time
    FOR i=1 TO 128 STEP 2
      POKE WORD Start-1+i, PEEK WORD(VARPTR(a$)+i)
    NEXT i
    Length=Length-128
    Start=Start+128
  WEND
  READ#1, a$;Length: REM Read the last bytes
  FOR i=1 TO Length STEP 2: REM Finish pokes to mem
    POKE WORD Start-1+i, PEEK WORD(VARPTR(a$)+i)
  NEXT i
  CLOSE#1
END FN
```

Apple // BSAVE and BLOAD FN's

How to Configure Graphic Coordinates to Apple's Pixel Resolution

To set graphics to pixel coordinates of 280 x 192 for Hi-Res and 560 x 192 for Super Hi-Res (versus the standard ZBasic device independent Graphic coordinate system of 1024x768) do the following:

```
POKE &F388, &60
REM Sets to Apple's coordinates
```

To reset the system back to ZBasic coordinates:

```
POKE &F388, &A9
REM Reset to ZBasic coordinates
```

ProDOS Version Notes

The ProDOS version of ZBasic will be out early next year.

There will be two versions; One that operates in 64K, primarily for old Apple //+'s and the new //e's without extended memory; and a 128K version for the //e and //c with 128k.

Both the 64K and 128K versions will be included on the same disk. The new ProDOS version of ZBasic will be called 4.0.

Some of the features of the New ProDOS™ Version

- Both the 64K and 128K versions will support ProDOS RAM disks; take advantage of extra memory
- BLOAD and BSAVE FN's that use ProDOS directly
- Change system prefix

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Z80

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the latest version of ZBasic.

Upgrade Information

The latest version of ZBasic for CP/M-80, Amstrad, TRS-80, and Kaypro, is 3.1. It has been available since August 1986.

Upgrades for people that purchased version 3.0 since June 1,1986 are free; just send your master diskette with a copy of your dated invoice for replacement. If purchased prior to Aug. 1, cost is $19.95.

New Manual

The Third edition manual is also available for $19.95 (one to a customer). It has the Z80 appendix built-in and has been revised and re-edited. It is now 630 pages compared to the second edition which was 400 pages. Well worth the $19.95.

High-Speed Math Package Available for Z80

We now have available for CP/M and TRS-80 model 4, the Z80 high-speed binary floating point math package option. It does binary floating point math in 6 digit precision and is 3-10 times faster than the BCD version of ZBasic. It is quicker than greased lightening for those scientific programs that can't wait.

It does not have the accuracy or selectable precision of the BCD version but it sure is quick!

It is available now for $59.95 plus shipping.

Z80 Technical Support Notes

David Lewis
Zedcor Technical Support

As part of the Zedcor support group, let me express my desire to help you with any of your ZBasic questions.

ZBasic Technical Support
(602) 795-3996
10:00 AM to 5:00 PM MST
Monday-Friday

This column will cover the common problems ZBasic users have using this version. I get asked the same questions everyday and can recite the answers in my sleep. Keep your newsletters handy for future reference.

Please send any program solutions you have created for this version. I will include them in my column to help your fellow users.

Runtime DIR with CP/M

A number of you have asked for a way to get disk directories in a running ZBasic program for CP/M 2.2, CP/M plus and CP/M 3.0: Mr. Jessup from Jessup's Softworks, 2205 Ingrid Ave., San Diego, CA 92154, was kind enough to send an example program that reads the CP/M directory.

Thank you Mr. Jessup:

Program listing on opposite page.

BREAK key Problem with NEWDOS on TRS-80

This problem crops up when people are using ZBasic with NEWDOS. It has to do with NEWDOS disabling the BREAK key. Simply reconfigure NEWDOS to enable the BREAK key and the problem is solved.

After using CMD" ", my TRS-80 program "hangs". What's the problem?

ZBasic allows you to do many of the TRSDOS or NEWDOS calls with CMD"" only if those commands fit within the memory allocated to the system. Some commands, like COPY, will load larger modules over your program code and destroy it. ZBasic starts at &3000 on Model 4's and &5200 on model 1-3. Be sure the code does not "overflow" into this region.

You will need to determine which DOS functions cause the problem through trial and error (unless some kind soul will send a listing of which ones work and which don't).

Another way to overcome this problem is to call a "DO FILE". A "DO File" is created using "BUILD" in TRSDOS and most other DOSes and can be used to execute a series of operating system commands and give a final command to re-execute your program. Of course variables must be saved. •••

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```
 01 REM XDIR 1.0 11/08/85  Jesup's Softworks
 05 CLEAR
 10 DIM 128 DMA$, 25 FCB$, TEMP$, 80 I$(150), 1 A$, DR$
 20 REM
 30 REM
 40 "XDIR"
 50 CLS
 55 REM
 60 REM ©1985, Jessup's Softworks.  Public Domain.
 65 REM Use in your programs for non-commercial use.
 66 REM Mr. Jessup at (619) 424-7288 for commercial use.
 67 REM
 70 I=LEN(S$)/12
 80 PRINT@(40-I,1);S$
 90 LOCATE 0,2:CLS LINE
100 INPUT@(22,2)"DIR OF WHICH DRIVE 'A' OR 'B' ";DR$
110 DR$=UCASE$(DR$):IF DR$<>"A" THEN IF DR$<>"B" THEN 90
120 LOCATE 0,2:CLS LINE
130 PRINT@(32,2);"DIRECTORY OF ";DR$;":'"
140 IF DR$="A" THEN DR=1 ELSE DR=2
150 PRINT
160 FCB$=CHR$(DR)+"???????????"+CHR$(0):DMA$=SPACE$(128)
170 REM "SET-DMA"  Set DMA address
180 REM  LD C,#1A; LD DE, DMA$;  INC DE; CALL BDOS
190 MACHLG &0E,&1A,&11,DMA$,&13,&CD,&05,&00
200 REM "SEARCH-1"  Search for first
210 REM LDC, #11; LDDE,FCB$; INCDE; CALLBDOS; LD(FIL%),A
220 MACHLG &0E,&11,&11,FCB$,&13,&CD,&05,&00,&32,FIL%
230 FIL%=PEEK(VARPTR(FIL%)): REM  Low Byte
240 J=0
250 LONG IF FIL%<4
260   DO
270     J=J+1:IF J>64 THEN PRINT ERROR J>64": GOTO 400
280     K=FIL%*32+2
290     TEMP$=MID$(DMA$,K,11)
300     I$(J)=TEMP$
310     A$=MID$(DMA$,K-1,1)
320     IF A$=CHR$(&EF) THEN J=J-1
330     FIL%=VARPTR(FIL%)
340     REM "SEARCH-2" Search for second
350     REM LD C,#12; CALL BDOS; LD (FIL%),A
360     MACHLG &0E,&12,&CD,&05,&00,&32,&FIL%
370     FIL%=PEEK(VARPTR(FIL%)):  REM LOW BYTE
380   UNTIL FIL%>5
390 END IF
400 FOR I=1 TO J
410   TEMP$=MID$(I$(I),1,8)+"."+MID$(I$(I),9,3)
420   PRINT "   ";TEMP$;"   ";
430   IF (I MOD 4 =0) THEN PRINT ELSE PRINT ":";
440 NEXT I
450 PRINT: PRINT
460 PRINT "THERE ARE ";J;" FILE<S> ON DRIVE ";DR$;":."
470 PRINT "THERE IS ROOM FOR ";64-J;" MORE"
480 PRINT
490 PRINT: INPUT"PRESS RETURN TO CONTINUE";TEMP$
500 RETURN
```

CP/M-80 or CP/M Plus
Runtime DIRectory
Example

ZBasic Inventor

continued from page one

a powerful "Standardized" version of BASIC that runs on many computers.

He has supervised all the current versions and is responsible for the newest updates to the Macintosh version .

Andrew has previously been involved in R&D for both Hardware and Software at National Semiconductor, Burr-Brown, Inc., and Simutek Computer Products, Inc.

He has designed complete computer systems and peripherals as well as systems software.

Andrew is President of Zedcor, Inc. •••

Michael A. Gariepy
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Dear Dr. Z,
INDEX$ does not work.

Kurt Allen Deadorff
7417 Lazy S. Lane NE
Bremerton, WA 98310

The problem you are having with INDEX$ is a common one. What is happening is that you must set aside memory for INDEX$, otherwise it appears not to work. The command to use is CLEAR nnnn, where nnnn is the number of bytes needed for the INDEX$ arrays. This is limited to the available memory of the computer. See the appendix for your computer for specifics and also see the "MEM" command in the reference section.

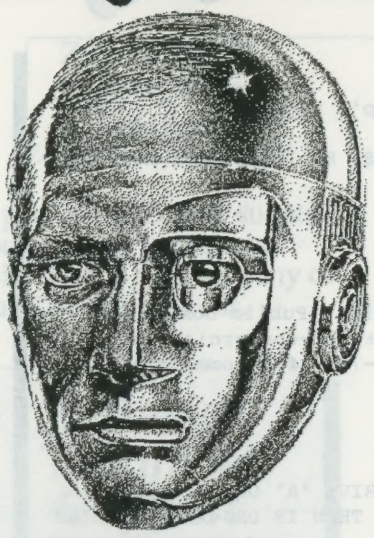
Dear Dr. Z,
Suggestion: clearly state that ALL KEY WORDS MUST BE PLACED IN CAPS at the beginning of the manual.

David Nunn
Stanford University
3325 Stockton Pl.
Palo Alto, CA 94303

You're right David. This confuses folks that are used to other versions of BASIC that don't care about case. I will have your suggestion added to the next addition of the manual. The solution to this problem is to set COVERT TO UPPER-CASE to "YES" under configuration. This will alleviate the confusion. It will also make a variable like "Fred" the same as "FRED".

Dear Dr. Z,
We develop for the Apple, and I would like to know if your Apple version would allow us to change the character sets when using text and graphics. We write chemistry and educational software and would need many special symbols. Thanks.

Paul Groves
The Mole Company
15455 Glen Oaks Bl. #243
Sylmar, CA 91342



Dear Dr. Z

Dr. Z is half-computer, half-human. He is from the world of Algorythmium-- a dark strange land of Data Trees and Binary galaxies.

He thinks in ZBasic and knows all there is to know about the language. He is a being of strange knowledge and incredible powers.

If you have any questions about ZBasic send them to Dr. Z. He will answer all letters. Those letters of public interest will appear in this column.

Unless otherwise specified, names and address will appear in the column.

Send questions to:
DR. Z
4500 E. Speedway, #22
Tucson, AZ 85712

The release of the Apple // ProDOS version has facilities for loading in your own character sets for the //e, //c or //+. This should solve your problem. Word is that existing owners of the Apple version will get the ProDOS version at 50% off! Look for it around the end of the year.

Dear Dr. Z,
Is there any way to defeat the automatic indentation of loops.

Tom Ashwell
BusinessCare
Box 189
Thornhill, Ontario L3T 3N3

Yes. Just load your source code (saved in ASCII with SAVE) into a word processor then list it out to the screen or printer. Listing to the screen without indentation can also be accomplished using the up-down listing keys; the cursor keys on MSDOS and Apple //e-//c machines, the /, [and] keys on the Macintosh, and configurable on other computers.*

Dear Dr. Z,
When I set ZBasic to default to Single or Double precision under "Configuration", ZBasic runs slower than MBasic™!

Anonymous

That's right! Standard ZBasic comes with a High-Precision, BCD package (all FP calculations default to 14 digits precision). While you can get incredible precision without the rounding errors inherent in Binary Math packages (a 1 can be .999998), the performance for doing integer and scientific calculations is a bit slower . Therefore it is extremely important to define only those variables that will be used in floating point operations as single or double precision. It is also extremely important to set Double precision accuracy to 6 digits (8 on the Mac) to get maximum speed since Double precision sets the internal digits of calculation, not single precision. ZBasic "Integer" math is faster than any other

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language!

Some examples of things that don't need to be floating point; a FOR -NEXT loop variable, any numbers between -32768 and +32767 (±2billion on the Macintosh), any math done in integer range and any other integer functions. Setting ZBasic configuration to default to single or double precision is a sure way to slow down a program.

We have a high-speed, binary math package available for Z80 computers for $59.95. Watch for optional high speed, binary math packages coming for the IBM PC/MSDOS version (supports 8087 and 80287 coprocessors) and the Macintosh and Apple // (SANE and 68881 coprocessor support).

The speed of floating point for the high-speed, binary math options is incredible, but it will not have the configurable precision of BCD ZBasic.

Dear Dr. Z,
Excellent package for only $89.95. I could use a full screen editor though (IBM version).

Michel Blais
16431-97 Ave.
Edmonton, Alberta T59 OE7

The problem is solved in version 4.0 for MSDOS-IBM PC and Apple // computers coming in December. I've used it and it's great.

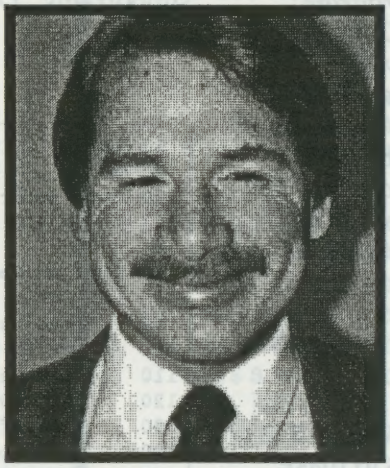
Write and edit programs without line numbers, or with line numbers on only some

continued next page

Introduction

continued from page one

The ZBasic language is a living thing. It is constantly changing, growing and expanding to fit the needs of its users. Most of us here are programmers. We understand the concerns of other programmers. We would like to make this publication a useful tool by providing a forum for ZBasic users to share experiences, programming ideas and provide support for each other as well as the support from Zedcor. This will help us provide you with a language that fits your needs in every possible way.



Michael A. Gariepy

Zedcor began shipping the IBM PC®/MSDOS™, APPLE //® and Z80™ versions of ZBasic™ in September of 1985. Since then we've added the Macintosh version and the High Speed floating point math package for Z80 machines and are working hard on the latest new products for next year.

We have finally installed systems to keep track of our rapidly growing customer base. This allows us to inform you in a timely manner of updates and revisions with this newsletter.

It's been a busy year and we all thank you for making it a prosperous one. We've sold more ZBasics than we ever imagined---and most of the sales have been from word of mouth. Many thanks to all of you for your support.

We hope you enjoy this issue. Everyone at Zedcor worked hard to put it together. Special thanks to Andrew Gariepy, David Lewis, Greg Branche and Hal Liang for their technical support. The newsletter was printed using Microsoft Word™ and PageMaker™ on a Macintosh Plus™, with an Apple Laserwriter™.

We Need Your Support

To make "Z" a success we need your active involvement.

Please submit articles, utility subroutines, or any other information that may be useful or of interest. I'll include submissions in the newsletter for the benefit of all.

"Z" has quite a few helpful programs but to make future issues even more valuable we will need your involvement.

Any feedback about how I can improve the newsletter or make it more useful will be appreciated. •••

Ed.

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lines, complete cursor control and more. (this is not to mention all the other additions to 4.0.)

Dear Dr. Z,

Enclosed is a program I've created that will APPEND data to an existing (text) file.

Jim McGarity
411 Jackson Ave.
Endicott, NY 13760
(607) 748-9568

Thanks Jim. This program was written for MSDOS ZBasic but should work equally well with the CP/M, TRS-80 and Apple // versions. Note that TRS-80 RECORD lengths are 256. Note that the Mac version has an APPEND command so this program is not necessary.

Listing on the right-->

Dear Dr. Z,

I want to add BLANK lines to my program listings to make them easier to read. Unfortunately, ZBasic requires a REM on blank lines.

Anonymous

Here's a simple solution. Use a colon (:) instead of a REM. This looks much better.

Dear Dr. Z,

I have enclosed a listing of another version of Quick-Sort, which I think is much better than the awkward one that you supplied with ZBasic 3.0. Try it!

Johan Brouwer
6 rue de la Vallee
L-7337 Heisdorf
Luxembourg

I was SORT of skeptical when I saw this listing (and even more so when I saw I'd have to type it in!). Mr. Brouwer was right. The Quick-Sort supplied with ZBasic sorted 50,000 long integers on the Macintosh in 3 minutes. 26 seconds., Mr. Brouwer's Quick-Sort did the same number in Ø minute. 54 seconds. Clearly superior! Thank you sir. The listing is on the opposite page:

Dear Dr. Z,

I need a package that takes FULL advantage of the Laserwriter. MSBasic does not support this. Does ZBasic?

Richard Harbue
Progressive Designs
668 Dahlia Way
Louisville, CO 80027

You bought the right language Richard. We do everything the Apple LaserWriter driver can support. Using ROUTE 128 allows you send graphics and text simultaneously. LPRINT with the ZBasic TEXT command allows complete font control (ZBasic even lets you do color on the ImageWriter II). •••

```
 10 REM FUNCTION: Open
 20 REM Open the filename f$ for APPEND as file
 30 REM number f%. The record pointer will be
 35 REM positioned to the next available position
 40 :
 70 LONG FN Open(f$,f%)
 80   OPEN"R", f%, F$,128
 90   Filelen%=LOF(f%): NextRec%=FileLen%: NextLoc%=0
100   LONG IF FileLen%>0
110     NextRec%=NextRec%-1
120     RECORD #f%,NextRec%,NextLoc%
130     READ#f%, NextRec$;128
140     NextLoc%=INSTR(1,NextRec$,CHR$(26)):REM Apple=CHR$(0)
150     LONG IF NextLoc%>0
152       NextLoc%=NextLoc%-1
153     XELSE NextRec%=NextRec%+1
154     END IF
160   END IF
170   RECORD #f%, NextRec%, NextLoc%
180 END FN
185 :
190 REM FUNCTION: Close (CLOSE file w/EOF char. filenumber=f%)
240 LONG FN Close(f%)
250   PRINT #f%, CHR$(26);:REM CHR$(0) for APPLE
260 CLOSE#f%
270 END FN
```

Note to MSDOS users: With the addition of USR1(filenumber) in version 3.02 as an EOF equivalent, other ways of doing this are possible.

Notes:

LINE 80: File MUST be opened with record length of 128 so that LOF yields the EXACT number of 128 byte records. (256 WITH TRS-80)

LINE 110: Since LOF returns the number of records in the file (and not the number of the Last record Of the File), the value needs to be adjusted to point to the last 128 byte record of the file.

LINE 130: READ MUST be exactly 128 bytes to get the last sector.

LINE 150: If EOF character (CHR$(26)) IS found in the last record sector, then position must be adjusted by one. If not found then function assumes you want to append starting at the physical end of file (beginning of the next record/sector).

LINE 250: Since the file was OPENed as "R", you must explicitly write out an EOF character to it before closing.

APPEND Sequential Files

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A "Quicker" Quick-Sort

The following listing was provided by a ZBasic user like yourself. This sort is incredibly fast! If you have any program routines like this, send it in! We'll publish it. Nobody likes to re-create the wheel.

```
REM This routine was written by Johan Brouwer and
REM can be regarded as public domain so use it freely
REM in all your programs.  (Thanks Johan! Dr. Z.)

REM This is an improved version of the Quick-Sort
REM Supplied with ZBasic 3.0.  It also includes element 0
REM of array SA() in the sort, and is much faster.

"IMPROVED QUICK SORT"
REM In the following program, a stack-array; ST(,), is
REM dimensioned instead of the L() and R() arrays used
REM in the calling program on page 102 of the manual.

DIM ST(30,1)
SP=0: ST(0,0)=0:ST(0,1)=0
SF=-1:ST(0,1)=NI
DO
  L=ST(SP,0): R=ST(SP,1): SP=SP-1
  DO
    LI=L:RI=R: SA=SA((L+R)/2)
    DO
      WHILE SA(LI) < SA
        LI=LI+1
      WEND
      WHILE SA(RI)>SA
        RI=RI-1
      WEND
      LONG IF LI =< RI
        SWAP SA(LI), SA(RI)
        LI=LI+1: RI=RI-1
      END IF
    UNTIL LI > RI
    LONG IF (R-LI) > (RI-L)
      LONG IF L<RI
        SP=SP+1: ST(SP,0)=L: ST(SP,1)=RI
      END IF
      L=LI
    XELSE
      LONG IF LI<R
        SP=SP+1: ST(SP,0)=LI: ST(SP,1)=R
      END IF
      R=RI
    END IF
  UNTIL R <=L
UNTIL SP= -1
RETURN:REM QUICKSORT FINISHED HERE
END
```

IBM/MSDOS

continued from page two

It converts about 95% of your program to ZBasic syntax in a flash. What it can't convert, it documents and gives you suggestions of how to convert those lines manually.

This program will shorten conversion time by many hours. A real time saver! Call 1-800-482-4567 to order.

IBM PC®- MSDOS™ Technical Support Notes

David Lewis, Zedcor Technical Support Group

As part of the Zedcor support group, let me express my desire to help you with any of your ZBasic questions. Feel free to contact me at Zedcor, 5 days a week, from 11AM to 5PM, MST. The phone number is (602) 795-3996.

This column will cover the common problems ZBasic users have using this version. I get asked these same questions everyday and can recite the answers in my sleep. Keep your newsletters handy for future reference.

Please send any program solutions you have created for this version. I will include them in my column to help your fellow users.

Reading the MSDOS™ Command line

A number of users have asked for a way to read the command line from DOS. This is handy for passing data to your .COM

continued next page

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APPLE

continued from page 5

• A powerful Full Screen Editor (use without line numbers)

• Extremely easy-hooks to Pro-DOS machine language

• Both 64K and 128K versions include at no extra charge

• Text and Graphics integration

• Super-High Resolution graphics supported (not //+).

• Creats ".SYSTEM" files

• Configure printer initialization

• Changeable character sets for the high-res character driver

• Other Top-Secret stuff that will blow your socks off!!

To show our appreciation to original DOS 3.3 users we will off the ProDOS version at 50% off to existing ZBasic DOS 3.3 users (about $45). •••

IBM

continued from previous page

files directly. For instance, if your program was called "FRED.COM" and you wanted a user to be able to pass a file to your program when loading it by typing in "FRED, File12" from MSDOS, you could read the filename by using the example program and reading the ASCII characters into a string (from the sixth position in this example). A listing for reading data off of the MSDOS command line follows:

```
"GET COMMAND LINE"
A$="":A=PEEK(128,MEMC)
IF A=0 THEN "END"
FOR B=130 TO 128+A
  A$=A$+CHR$(PEEK((B,MEMC))
NEXT:REM A$=COMMAND LINE
"END":RETURN
```

Command Line

Reading Sequential files larger Than Eight MB

Thanks to Mr. Jack Speer in Mineral Virginia who was working with CD ROMS, we discovered that MSDOS sets an arbitrary limit of eight (8) megabytes to Sequential file reads. Hal Liang gives us this routine that fixes the problem. Using this routine Mr. Speer was able to read files of more than 500 megabytes. As far as we know more than a billion byte file can be read this way:

• The following subroutine allows the MSDOS version of ZBasic to read sequential files larger than 8 megabytes. It will read a file sequentially 32 bytes at a time (returned in A$). The flag "X5" is set to 1 when the END OF FILE is reached.

```
OPEN"I", 1, "SEQ.TXT":X5=Ø: REM Change filename as needed
DO
  GOSUB"DOS Fix"
  PRINT A$;:PRINT "--->";LEN(A$):REM A$ contains string data.
UNTIL X5 = 1
END
.
:
"DOS Fix":TROFF:REM Always make sure Trace is off with MACHLG
MACHLG &C7,&06,&66,&03,&20,&00,&8B,&16,&7F,&03,&42,&B4,&1A,&CD,&21
MACHLG &BA,&58,&03,&B4,&14,&CD,&21,&8B,&36,&7F,&03,&C6,&04,&20
MACHLG &C6,&44,&21,&00,&BF,A$,&B9,&34,&00,&F3,&A4,&0A,&C0,&74,&03
GOTO "Finish"
RETURN: REM MACHLG code jumps here don't change
"Finish": X5=1:REM End of File Flag
B$=A$: A$=LEFT$(B$, INSTR (1, A$,CHR$(0))-2): RETURN
```

Sequential Files Greater than 8 Megabytes

Printing on the CGA Screen without "Snow"

In order to remain compatible with other boards and computers for MSDOS machines, ZBasic sends Color Graphics Adaptor text printing through the BIOS. On some systems this causes a bit of screen flickering or "snow". Lon McQuillin, Box 1676, San Mateo, CA 94401, has sent us a little routine that will fix this. Thanks Lon . . . .

"I was able to create a rather simple but functional assembly routine to write directly to the Color Graphics adapter without the normal resulting "snow" effect. While it's not as fast as the "POKE &342,1" function available for the monochrome display adapter, it is considerably faster than writing the screen through BIOS. I've enclosed the assembly pseudo-code and a complete (ZBasic) subroutine ready to be inserted in any ZBasic MSDOS program. I encourage you to share it with other ZBasic users."

"FILES" Simulation

This routine is a handy one for those folks wanting to simulate the FILES command as in BASICA. This routine was

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submitted by: Steven Abrams, 1600 44th Ave., San Francisco, CA 94122. Thank you Steven. I'm sure a lot of users will appreciate it.

Runtime "DIR"

A number of folks have asked how to get a listing of the files on the disk from a running program. To get a DIRectory printed to the screen simply use `CALL"DIR"`.

Another way is to load a DIR into a text file so that you can load the filenames into your program and manipulate them;

```
CALL "DIR>DIR.TXT"
```

(make sure there are no spaces in the filename). The file "DIR.TXT" will contain the ASCII listing of the files. Load filenames into a string array using LINEINPUT#n, and use them as you see fit.

Note: COMMAND.COM must be on the disk for either of these examples to work properly.

```
FilA$="A:\*.*"+CHR$(0):FilB$="B:\*.*"+CHR$(0)
"FILB": file$=FilB$:CALL LINE"files"
"FILA": file$=FilA$:CALL LINE"files"
"files"
MACHLG &O6,&1E,&50,&53,&51,&52,&0E,&1F,&B4,&2F,&CD,&21,&BA,file$
MACHLG &B4,&4E,&B9,&00,&00,&CD,&21,&72,&12,&E8,&23,&00,&B4,&4F
MACHLG &B9,&00,&00,&CD,&21,&72,&06,&E8,&17,&00,&EB,&F2,&90,&B2
MACHLG &OD,&B4,&02,&CD,&21,&B2,&0A,&B4,&02,&CD,&21,&5A,&59,&5B
MACHLG &58,&1F,&07,&C3,&90,&B9,&0D,&00,&BB,&9E,&00,&26,&8A,&17
MACHLG &B4,&02,&CD,&21,&B0,&20,&26,&88,&07,&43,&E0,&F1,&B9,&07
MACHLG &00,&B2,&20,&B4,&02,&CD,&21,&E0,&F8,&C3
RETURN
```

"FILES"

Getting more Speed out of Array Manipulations

When DIMming string array lengths, use a number that is equal to 2^n-1 where n=1,2,3,4... This speeds up internal array manipulations because ZBasic will do SHIFTS instead of multiply for accessing array elements. Example string lengths would be 3, 15, etc. Example:

```
DIM 3 A$(10,10)
DIM 15 A$(10,10)
```

Integer arrays DIMension size is also important:

`DIM A%(15,15)` is faster than
`DIM A%(16,16)`

Tandy 1000 OPEN"C" Fix

A number of Tandy 1000, 1200HD and other Tandy model users have had a problem with the OPEN"C" command. It appears that Tandy pin-outs were slightly different from the IBM PC. A simple fix for this was provided by an anonymous user. To force carrier detect high simply wire pins 4 and 5 together and pins 6, 8 and 12 together. Thank you, whoever you are.

Tandy 2000 Note

People using the Tandy 2000 have experienced a peculiarity; when starting up ZBasic, the screen is filled with garbage characters. This is because ZBasic starts up in a different page. While it looks like the program has crashed, pressing "E" puts you in the ZBasic editor and everything works fine from there. The start-up page for the 2000 is not the same as most MSDOS systems.

Zenith Z-100 Series Note

The Zenith Z-100, Z150 and possibly others require a program that forces the

continued next page

```
REM  Print a line directly to CGA without snow
REM  Writes to Page 1; for other pages add offset to dest
REM  Call with string to be printed in print$
REM  row in vp, column in hp, attributes in color.
REM  DIM 80 print$ before calling this routine.
:
:
"PRINT CGA"
REM CLS LINE=print$=print$+SPACE$(80-LEN(print$)-hp)
source=VARPTR(print$)+1
len=LEN(print$)
dest=(vp*160)+(hp*2)
attr=color*256
MACHLG &55,&8B,&EC,&53,&51,&52,&1E,&06,&FC
MACHLG &B9,&00,&B8,&8E,&C1,&8B,&3E,dest,&8B,&36,source
MACHLG &BA,&DA,&3,&EC,&A8,&8,&74,&FB,&8B,&E,len
MACHLG &A1,attr,&8A,&4,&AB,&46,&E0,&FA
MACHLG &07,&1F,&5A,&59,&5B,&5D
RETURN
```

CGA "SNOW" Removal

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MSDOS environment to be more like standard MSDOS machines. This program is called "ZPC-PC Emulation Program". It is available from Heathkit and Zenith dealers. Without running this program ZBasic will not execute properly (DOS gives a "WILD" interrupt error).

Text Formatting in Monochrome Mode

I have received a number of requests how to format text for highlighting, reverse video, etc. The following examples should clear it up for you. You might want to make a xerox of this page and insert on page A-24 (thanks to Hal Liang, our MSDOS expert and Pat Anderson a ZBasic user for these suggestions for using COLOR in the monochrome mode (MODE 2 in ZBasic). Example:

```
MODE2:REM REVERSE BLINKING
COLOR ,240
```

Patches to Early versions of version 3.02

If you purchased ZBasic for the IBM prior to the dates listed below you will want to apply the appropriate patch to fix bugs or problems. Patch is done under the start-up configure screen of ZBasic (<P>atch). Be sure to patch a back-up diskette of ZBasic, not your master diskette. When you are done be sure to save your configuration with <S>ave

Monochrome Text Examples

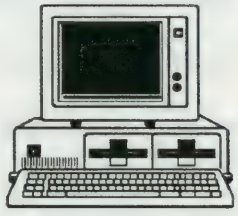
Normal Intensity	
Regular	COLOR ,7
Blinking	COLOR,135
Underline	COLOR,1
UL Blinking	COLOR,129
Invisible	COLOR, 136
(e.g. for inputting Passwords	
High Intensity	
Regular	COLOR,15
Blinking	COLOR, 143
Underline	COLOR,9
UL Blinking	COLOR,137
Reversed (Inverse)	
Regular	COLOR,112
Blinking	COLOR,240

4.0 Rumors

We are working hard to finish version 4.0 for MSDOS PC's. With any luck it will be available early next year and will contain lots of goodies:

- Full memory use for variables (arrays larger than 64K)
- Powerful full screen editor
- CGA, EGA, PGA, Hercules, and Hercules+/Ramfont graphics support
- BASICA compatibility
- Math coprocessor support (8087 and 80287) that utilizes the processor if installed, uses built-in high-speed binary math routines if not. Extremely fast but will not have the selectable precision of the existing ZBasic.
- SELECT CASE (watch out Modula and Pascal!)
- Other top-secret stuff

Upgrades to existing users will be 50% off (about $45). This version will have a new manual and many enhancements.•••



MSDOS™ version 3.02 Patches

Patches to MSDOS Version 3.02 dated **PRIOR TO APRIL, 1986**
Bug: AUTO divides line numbers by 10:
PATCH 3A2B from: &4E to &90

Bug: IBM Text printing on column 79:
PATCH &E57 from &75 to &76

IBM compatible hi-speed text printing for RUN* use. Note that the configuration does not stay set in stand-alone applications unless this poke is used. The method implemented for compatibility reasons:
POKE &342,1 for on, POKE &342,0 for off.

Bug: String Compares:
1. PATCH &D2E from &77 to &72
2. PATCH &CA2 from &CF to &C7
3. PATCH &D39 from &DF to &FB

Patches to Version 3.02 **PRIOR TO AUGUST, 1986**
INDEX$ problem during chaining:
PATCH &3052 from: &E8, &50, &00, &8E, &D3
to: &8E, &D3, &E8,&4E,&00

Patch to all 3.02's RUNNING ON IBM PC-AT (80286) TYPE COMPUTERS:
Patch to allow DTR from going low when writing to the communications port with the ZBasic OPEN "C" statement:
PATCH &3105 from &EE to &90

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UPGRADES

continued from page one

always welcome. In fact, we carefully examine all feedback for ideas to improve the product and make it more useable. Please send comments or suggestions for improvements to my attention.

If you do not have the latest version of ZBasic, or the latest reference manual, fill in the ordering form on this page. We will ship you your upgrade right away.

I promise to continue providing upgrades at a fair price.

Thank you for using ZBasic. We appreciate your business.•••

Editor

Happy Holidays
from Zedcor

ZBasic™ Upgrade Order Form

This form will make ordering your ZBasic upgrade easy.

Name_____Position_____

Company_____

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Country_____

Telephone(___)____-_____License number_____

When Ordered ____/____/19____

What do you want upgraded:

- ☐ MSDOS™, IBM PC®
- ☐ Apple // DOS 3.3
- ☐ CP/M™
- ☐ Amstrad®
- ☐ TRS-80™ model 4
- ☐ Macintosh™
- ☐ Apple // ProDOS™
- ☐ CP/M™(Kaypro® graphics)
- ☐ TRS-80™ model 1, 3

☐ ZBasic Reference Manual

Cost: If you purchased an older ZBasic version or manual in the past 60 days you are entitled to a free upgrade. Call: 800-482-4567

If purchased more than 60 days ago the cost is $19.95 + shipping (+ sales tax if applicable) for each version upgrade or manual upgrade.

Software Upgrades: Free Upgrade: If you are elligible for a free upgrade we MUST have a copy of the dated invoice and the original ZBasic diskette. Others: *Zedcor Invoice OR copy of serial numbered License agreement OR Original ZBasic diskette and original invoice for each version you upgrade. Addendums included (manuals not replaced).

Manual Upgrades: Return Front Cover of the Old Manual. Only one manual upgrade per customer at this price (additional manuals are available for $44.95 each + shipping).

Mode of payment: Visa, MC, AMEX, Check, C.O.D.
****Manual Shipping: USA:** UPS $5, Blue Label $10, COD $10
Canada: $12, **Foreign:** $25 --->USA$ ONLY (no foreign COD's).

Questions: (800) 482-4567

Send items and payment to:

ZBasic UPGRADES
4500 E. Speedway Blvd., Suite 22
Tucson, Arizona 85712
Telephone orders: (602) 795-3996, (800) 482-4567

* Photocopies acceptable for everything except manual cover or cover page.
**Diskette only shipping is free in U.S. $5.00 outside U.S.

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Macintosh

continued from page 3

• Window size up to 8192x8192 pixels (supports full page displays).

• Additions to EDIT FIELD

• New DIALOG to do INKEY$ during event-trapping

• Improvements of Command and Edit windows.

• Printing Speed increased 5-20 times for printer and screen.

• Disk print speed increased by 3-5 times

• Lots of other things too numerous to mention

It's well worth the $19.95.

IMPORTANT UPGRADE NOTE TO 3.02 OWNERS

As of this writing we have made changes to 3.02. The official release is 3.03.

There were a few problems with 3.02. We have added a number of new commands on 3.03.

If you have version 3.02 (not 3.01) send in your master diskette for a free upgrade to 3.03.

Macintosh™ Technical Support Notes

David Lewis, Zedcor, Inc. Technical Support Group

As part of the Zedcor support group, let me express my desire to help you with any of your ZBasic questions. Feel free to contact me at Zedcor, 5 days a week, from 11AM to 5PM, MST. The phone number is (602) 795-3996.

This column will cover the common problems ZBasic users have using this version. I get asked these same questions everyday and can recite the answers in my sleep. Keep your newsletters handy for future reference.

Please send any program solutions you have created for this version. I will include them in my column to help your fellow users.

Converting Old MSBasic Programs To ZBasic

Zedcor has an MSBasic™ to ZBasic conversion program available for $29.95. It converts about 95% of your program to ZBasic syntax in a flash. What it can't convert, it documents and gives you suggestions of how to convert it manually A real time saver! Call 1-800-482-4567 to order.

Improving the speed of Array Manipulations

When DIMming string array lengths, use a number that is equal to 2^n-1 where n=1,2,3,4... This speeds up internal array manipulations because ZBasic will do SHIFTS instead of multiply for accessing array elements. Example string lengths would be 3, 15. . . . Example:

```
DIM 3 A$(10,10)
DIM 15 A$(10,10)
```

Integer arrays DIMension size is also important:

```
DIM A%(15,15) is faster than
DIM A%(16,16)
```

Speed increase will be appreciable.

Color Printing on the Imagewriter™ II

ZBasic supports color printing on the Imagewriter™ II with the Macintosh. 0=white-7=black. What are the other colors? Yellow, Magenta, Cyan, Orange, Green and Purple. Of course you'll need a color ribbon for your printer. Run this program:

```
DEF LPRINT
 ROUTE 128
 FOR X=0TO7
   COLOR=X
   PRINT "TESTING"
 NEXT
 ROUTE 0: 'Back to screen
 CLEAR LPRINT
```

Imagewriter Color Printing

Runtime Size

A number of Macintosh programmers have asked why a small , one line program, compiles to about 33K. ZBasic appends a 30-33k runtime routine to your program, whether the program is one line, or 20,000 lines.

Remember: the MSBasic 2.1 interpreter is over 80K and has to be resident to run your BASIC program.

continued on page 17

Due to problems with earlier versions of Mac system software... *always use* **SYSTEM 3.2** and **FINDER 5.3** (or newer)

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Can I Create Desk Accessories with ZBasic?

Not in the current version because DA's have many differences and limits; like program size and certain commands.

We are contemplating releasing a special , chopped down, version of ZBasic for creating desk accessories. If you find this desirable, drop us a note.

Example Programs with "Spaces Between Keywords"

Unlike other versions of ZBasic, we have put an option under configure called "Space req. after Key Words". This requires you to put a space after *every* key word in the program or ZBasic will not interpret it as a keyword (will probably return a syntax error).

A good example is a command like DEF OPEN (used to set type and creator for files). In the manual it is shown as DEFOPEN with no space between DEF and OPEN, which are both, you guessed it, key words. To fix this problem just turn off the "Spaces between key words" option or put the spaces in yourself.

We will endeavor to include spaces in the appropriate places in future editions of the manual to avoid confusion.

DIR "Volume name"

Version 3.03 has a change to DIR that was inadvertently left out of the manual and addendum. Instead of DIR n, it is now DIR "volumename". If you want the DIR of a diskette with the name of "Tom" , type `DIR "Tom"`. If you want the directory of a folder "Harry", inside a Folder called "Dick" inside the volume called "TOM", you would use:

```
DIR TOM:DICK:HARRY
```

Note that colons (:) are used to separate nested volumes and folders.

Mac XL-LISA

ZBasic is alive and well on the Macintosh XL and LISA with Macworks. Any tidbits or special applications sent in to us for this system will be put in this column.

For those Mac XL users looking for a dedicated newsletter that LOVES the old LISA and MAC XL, check out "The LisaTalk Report", a publication made especially for you. It is available quarterly from: The Networkers - The LisaTalk Report, 21 Canyon Rd., San Anselmo, CA 94960, for $42.00 a year.

The one we saw was nicely done and contained a hundred pages of articles, advertisements and advice for the XL.

Thanks to feedback from an unknown XL user, ZBasic 3.03 was modified so you can create windows large enough to use the full screen of the XL. Window size is now allowed up to 8192x8192 pixels.

Publisher Wants your Macintosh Programs

Practical Computer Applications, Inc. is a software publisher looking for quality simulations for the Macintosh. They are in need of full working applications in the area of education, entertainment, utility and productivity.

If you have a program that fits their needs send a description of the program to: Practical Computer Applications, Inc., Attention: Product development, Champlin, MN 55316 or call Kim at (612) 427-4789 (no connection with Zedcor, Inc.)

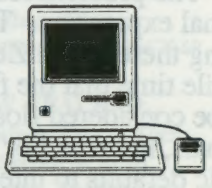
What's coming?

A lot of you have expressed dissatisfaction with the program editor we provided. We're working hard on a new editor to replace the EDIT WINDOW. The goal is to have an editor with boldfaced keywords, find and replace and other features all using standard Macintosh-type editing. Look for it around the beginning of the year.

We will also have a SANE package that is compatible with the 68881 coprocessor. This will be an optional package that will sell for about $59.95 retail.

We're also working on a compile time optimizer that will cut down the runtime size a bit.

Let us know what you want in future versions. •••



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ZBASIC EQUATIONS versus BASIC EQUATIONS

The way ZBasic decides whether an equation is floating point or integer has caused some concern among certain ZBasic users. The problem being that with ZBasic, all equations are considered integer unless a floating point type is specified, such as; #, !, decimal point, \, ^ or any scientific function.

Note that parentheses create a sub-expression and that that expression is evaluated separately from the rest. This fact seems to cause the most confusion. For example, the equation:

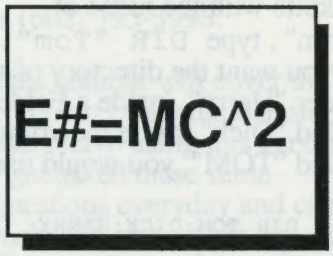
(2.2+2.2)+(1.1+1.1)

would return 6 in ZBasic. Obviously this not the result you are after. Let's look more closely at the equation;

There are actually three equations;

- (2.2+2.2)
- (1.1+1.1)
- (2.2+2.2)+(1.1+1.1)

ZBasic evaluates the first two expressions as Floating point since it sees a decimal point in each. The problem results in the final expression. There is nothing there to tell ZBasic at compile time that the final result is to be considered floating; no decimals, not # or ! or \, so ZBasic defaults to integer. To fix the problem, the example can be restructured in a number



of ways:

2.2+2.2+1.1+1.1
(2.2+2.2)+1.1+1.1
2.2+2.2+(1.1+1.1)
(2.2+2.2)+(1.1+1.1)+.0

This method is utilized to maximize program speed. To default to floating point would slow the program down ten-fold.

We are debating whether to force an entire statement to be floating point if any floating point specifier is discovered within that statement. While this could result in much slower code, it would certainly eliminate the confusion. We would appreciate your feedback about this. •••

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BULLETIN BOARDS

Got a bulletin board with a ZBasic forum you want advertised? Send me the information and I'll put it here.

Do you want Zedcor to have a bulletin board for answering questions? Let me know. If enough people want it, we'll do it. Perhaps a Round Table on GEnie or BIX?

John Gillett has a Macintosh Red Ryder™ bulletin board called "TIGER'S DEN" on has Macintosh. Call; (602) 951-4214 and get a password. Read "TECHIE STUFF". •••

USER GROUP

A number of you have expressed an interest in creating a ZBasic User Group. I think there's a lot to be said for the idea.

This would allow a number of folks with a common interest to help each other with common problems. They could create public domain libraries that can be shared.

The group will need a President and some sort of supportive committee. Zedcor would include User Group information in this newsletter for free and be willing to help out as much as possible.

If you are interested in joining a ZBasic Users Group, be sure to mark it on the subscription form. You will be notified. •••

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SUBROUTINES

continued from page one

Many of you would like a public domain library of subroutines written in ZBasic. We would be happy to provide a focal point for these utilities.

We would organize these subroutines for you and make them available free from CompuServe or Zedcor direct at our cost.

Send your routines on a diskette in ASCII format (SAVE*). Be sure to document the routines carefully and avoid line numbers if your can (SAVE*+). This way others can use your routines in their program with less work. Try and keep routines less than a page, although longer programs of value will be accepted.

Send your subroutines and program examples to:

ZBasic Newsletter
4500 E. Speedway, #22
Tucson, AZ 85712

•••

CUSTOMER PROGRAM ANNOUNCEMENTS

The following programs were written in ZBasic and are available for sale from the authors. If you have programs you wrote with ZBasic that you wish to advertise here, send a short description of the program to: Zedcor, Inc., Attention ZBasic newsletter, 4500 E. Speedway, Suite 22, Tucson AZ 85712. Programmers with public domain utilities, subroutines of usefulness, or tricks-- send them for inclusion in future issues (ASCII listing on disk is preferred if more than 20 or 30 lines). Your fellow programmers will be grateful.

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A. H. Nussel, 1606 NW 21st St., Gainesville, FL 32605, Music Directory Program, $35.
Peter Bennet, 23 Exford Dr, Scarborough ONT. M1P 1L5,Post-a-matic (Postscript stuff),?
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John D. Lewis, Rt14, Box 45, Moore, OK 73165, Books of the Bible-Bible Pursuit, $20.
Social Security Administration, Department of Health and Human Services, Suite 409, 845 S Figuaro St., Los Angeles, CA 90017, Various programs for Social Security uses, internal
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Shannon Assoc., Box 597, Chapel Hill, NC 27514, Language Conversions, $387. Converts: Fortran to ADA, Jovial to ADA, conversions to C, Dialect conversions.
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GPC Software Inc., Box 33570, Carson City, NV 89702, Mail and Phone Pro, $49.95
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CP/M™-80, TRS-80™

Stephen Moore, 303-51st st, Des Moines, IA 50312, Catholic Church Mgmnt Syst 2.0, Call
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J. Johnson, Tech Vil L-7W, Cookeville, TN 38501, French Curve (polynomial curve fit), $25

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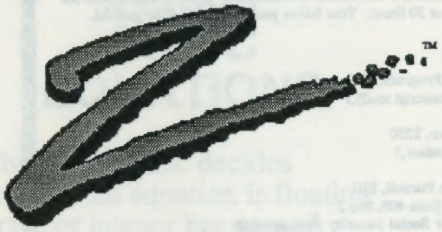

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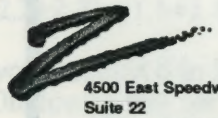

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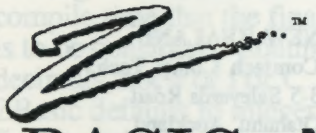

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